

## **REMARKS**

Claims 1-25 have been examined and rejected.

Claims 1, 5, 13, 16, 17, 19, 20 and 22 have been amended herein.

Claims 2, 3, 4, 9, 10, 11, 12, 15, 18 and 21 have been cancelled herein.

As required by rule 1.121, the amended claims are presented above with amendments in clean form, as well as in the final pages of the Amendment in marked-up form showing the changes made.

Reconsideration of the Claims, as amended, is respectfully requested.

### **Claim Rejections Under 35 U.S.C. § 112**

The Examiner has rejected Claims 1-25 under 35 U.S.C. § 112, noting certain terms in Claims 1, 2, 5 and 17 that the Examiner has indicated have insufficient antecedent basis. As can be appreciated from the amendments to the claims, all claims that have been retained which previously included the language objected to by the Examiner are now amended to address each instance of insufficient antecedent basis.

### **Claim Rejections Under 35 U.S.C. § 102 and § 103**

The Examiner has rejected Claims 1-4 and 21 under 35 U.S.C. § 102 as anticipated by Takamatsu et al. '937. The Examiner has rejected Claims 1-20 under 35 U.S.C. § 103 as unpatentable over Takamatsu et al. '937 and further in view of Sondblum et al. '242 and Brooks '018 or Doody '207. Finally, the Examiner has rejected Claims 1 and 21-25 under 35 U.S.C. § 103 as unpatentable over Woolford et al. '341 and further in view of Lavin '695.

Applicant has reviewed each of the references cited by the Examiner and has

amended the claims to patentably distinguish thereover. More particularly, two independent claims are now presented, namely, Claim 13, which is equivalent to Claim 13 as filed, but now written in independent form to include the features of original Claims 15 and 18. In addition, Claim 1 has been amended to be the combination of original Claims 1 and 21. The remainder of the claims are dependent from these two independent claims.

Referring first to amended Claim 13, one can appreciate that Claim 13 reads upon the embodiment of the present invention shown in Figures 16 and 17. Amended Claim 13 includes, among other things, a valve with four ports and two internal passageways. The internal passageways are selectively positionable by a valve actuator to connect and disconnect the four ports in two different combinations. Referring to Figure 17, Claim 13 specifies that in a first position, the first passage connects the first port and the second port, the first port being connected to the vacuum source and the second port being connected to the "at least one receptacle" (as shown in Figure 17 to element number 23 labeled "to controlled vacuum"). In a second position, the first passage connects the third port, which is connected to a vacuum sensor and to a vent, to the second port ("to controlled vacuum"). In the second position, the first port, which is connected to the vacuum supply, is also connected to a fourth port, which is connected to the surgical drape 25 in Figure 16.

None of the references, either alone or in combination, describe or suggest a valve with four ports and two intermediate passageways for selectively connecting combinations of ports in the manner shown in Figure 16 and 17 and claimed in amended Claim 13. Further, none of the references show the combination of connections to the various ports of the valve and thus the associated sets of connectivity which are achieved by articulating the valve between the first and second positions. As a result, Applicant

respectfully submits that Claim 13, as amended, is patentable over the references cited.

Applicant notes that none of the references cited relate to the clearance of fluids from a surgical drape. Claims 16 and 17 which now depend from Claim 13, accentuate the differences of the present invention from the references cited in this respect. In Claim 16, the invention is described as sharing a vacuum source between the receptacle and a drape via sequential timed distribution by switching the valve between the first and second positions under control of the vacuum controller. In Claim 17, the sharing of the vacuum between the receptacle and the drape is described as being prioritized by an algorithm to favor the acquisition of the set point vacuum level in the receptacle over the application of vacuum to the drape. Clearly, none of the references disclose or suggest either of these features. Claims 16 and 17 should therefore be allowable as reciting patentable subject matter.

With respect to the Examiner's rejection of Claims 21-25 as unpatentable over Woolford '341, Applicant respectfully disagrees that the Woolford '341 Patent shows or suggests the features of original Claim 21, which has been cancelled and merged into amended Claim 1. More particularly, it is clear that Woolford '341 does not have a pump for supplying a fluid to a cavity which is drained by a conduit leading therefrom to a receptacle that is exposed to a controlled vacuum, as claimed in amended Claim 1. In the present invention, as claimed, the pump and the vacuum source are working in opposition to one another, each operating upon a common cavity which is alternately supplied with fluid by the pump and drained of fluid by the vacuum source. Woolford, on the other hand, uses a milk pump 44 and vacuum pumps 40, 41 (Figure 4) in cooperation to draw fluids from a claw piece 10. Both the vacuum pumps (40 and 41 in Figure 4) and the milk pump 44 draw in the same direction from the claw piece 10. (Note also the arrows indicating flow

in conduits shown in Figure 4.) This is clearly a different arrangement than that shown in the present invention and claimed in amended Claim 1 wherein the pump is described as for "supplying surgical fluid to said cavity" and a source of vacuum attached to a conduit drains the cavity "for conducting said surgical fluid therefrom". Applicant therefore respectfully submits that amended Claim 1 patentably distinguishes over the Woolford '341 patent.

The claims depending from amended Claim 1, namely, Claims 22 and 23 have additional unique features relative to the references cited. Claim 22 specifies that the pump is adjustable to provide a selected output based upon a pressure approximating that present in the cavity. Clearly Woolford '341 does not project fluid towards a cavity, has no means for measuring the pressure of a cavity that is drained by a vacuum and therefore is inapplicable to the features of Claim 22. Claim 23 specifies that a dampener is disposed between the pump and the cavity. Woolford '341 does not show a dampener disposed between a pump and a cavity. As a result, Applicant respectfully submits that Claims 22 and 23 recite subject matter that is patentable over Woolford '341 and all the other references cited. In light of the foregoing, Applicant respectfully requests the allowance of the claims, as amended.

Applicant thanks the Examiner for her remarks in the Office Action mailed July 5, 2002 and has attempted to amend the claims in accord therewith. In view of the foregoing amendments and remarks, reconsideration and allowance of the claims are respectfully requested. Should there remain any questions or other matters whose resolution could be advanced by a telephone call, the Examiner is cordially invited to contact Applicants' undersigned Attorney at his number below.

In accordance with the provisions of 37 C.F.R. Sections 1.97 and 1.98,


applicant respectfully requests that U.S. Patent Nos. 5,045,077, 5,741,237 and 6,206,014 be considered by the Examiner and then made of record in the present application. The above-listed U.S. patents were identified during the prosecution of co-pending U.S. Patent Application Serial No. 09/497,221 filed January 31, 2000 (entitled "Surgical Fluid Management System with a Dampening Chamber"), which was previously identified in the Information Disclosure Statement mailed August 9, 2000 in connection with the present application. Since all of these U.S. patents are in the English-language, no comments regarding their relevance to the present application are deemed necessary.

To facilitate the Examiner's consideration and entry of the foregoing patents, applicant's attorney has completed United States Patent and Trademark Office Form PTO-1449. The completed form and copies of the patents listed therein are attached hereto for the Examiner's convenience.

The Examiner is hereby authorized to charge Deposit Account No. 19-1218 \$180 for official consideration of the enclosed patent documents. Should there be any additional fees required as a result of this Amendment And Information Disclosure Statement, the Examiner is authorized to charge them to Deposit Account 19-1218.

Respectfully submitted,

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## **AMENDED CLAIMS WITH MARKINGS TO SHOW CHANGES**

1. **(Amended)** Apparatus for controlling [the] a volume of surgical fluid present in a cavity in [the] a body of a patient during surgery, comprising:
- a conduit to said cavity for conducting said surgical fluid therefrom;
  - at least one receptacle for receiving said fluid from said surgical site, said conduit communicating with said receptacle;
  - a source of vacuum; [and]
  - a vacuum controller interposed between said vacuum source and said receptacle, said vacuum controller controlling the duration of time said receptacle is exposed to vacuum from said vacuum source; and
  - a pump for supplying surgical fluid to said cavity.

Claims 2-4, 9-12, 15, 18 and 21 have been cancelled.

5. **(Amended)** The apparatus of Claim [4] 13, wherein said vacuum controller has a timer for measuring the time that said valve is maintained in said first position and said second position, said timer permitting said vacuum controller to maintain said valve in said second position for a duration of time sufficient for said vacuum sensor to sense [a vacuum level approximate to] said vacuum level in said at least one receptacle when isolated from said vacuum source.

13. **(Amended)** Apparatus for controlling a volume of surgical fluid present in a

cavity in a body of a patient during surgery, comprising:

a conduit to the cavity for conducting the surgical fluid therefrom;

at least one receptacle for receiving the fluid from the surgical site, said conduit communicating with said receptacle;

a source of vacuum;

a vacuum controller interposed between said vacuum source and said receptacle, said vacuum controller controlling the duration of time said receptacle is exposed to vacuum from said vacuum source;

a vacuum sensor, for sensing a vacuum level approximating that in said at least one receptacle, said vacuum controller controlling a duration of time said at least one receptacle is exposed to vacuum based upon data from said vacuum sensor, said vacuum controller comparing the data from said vacuum sensor to a preselected vacuum setpoint and adjusting the time of exposure up or down as required to achieve the preselected vacuum setpoint; said vacuum controller having a valve and valve actuator for positioning said valve, said valve having at least two positions, a first of which places said vacuum source and said at least one receptacle in communication and a second of which isolates said vacuum source from said at least one receptacle; at least one other conduit leading to a surgical drape; said vacuum source adapted to apply suction to said at least one other conduit, said at least one other conduit being in communication with said valve, such that said valve controls application of vacuum from said vacuum source to said at least one other conduit; said valve having a plurality of ports and a first internal passageway therein which is selectively positionable by said valve actuator to connect and disconnect a selected one of said plurality of ports to another one of said plurality of ports, said valve having a first port connected to said vacuum source and a second port connected to said at

least one receptacle, said first port and said second port being selectively connectable to each other by said first internal passageway, said valve having a third port connected to said vacuum sensor, such that when said valve is in said first position said first port and said second port are in communication with each other and when said valve is in said second position, said third port and said second port are in communication with each other;  
[The apparatus of Claim 12, wherein] said valve [has] having a fourth port connected to said at least one other conduit and [has at least a pair of] having a second internal [passageways] passageway, said fourth port being connected to said first port via [one of said passageways] said second internal passageway when said valve is in said second position, and said third port being connected to said second port via [the other of said passageways] said first internal passageway when said valve is in said second position.

16. **(Amended)** The apparatus of Claim [15] 14, wherein said vacuum from said vacuum source is shared between said receptacle and said drape by sequential timed distribution thereof by said valve alternately switching between said first position and said second position under the control of said vacuum controller.

17. **(Amended)** The apparatus of Claim 16, wherein said sharing of vacuum is prioritized by [said] an algorithm to favor the acquisition of a setpoint vacuum level in said receptacle over the application of vacuum to said drape.

19. **(Amended)** The apparatus of Claim [1] 13, wherein said at least one receptacle includes a plurality of receptacles connected together by means for conveying fluid thereto.



20. **(Amended)** The apparatus of Claim [1] 13, further comprising a flow-back filter positioned between said vacuum controller and said at least one receptacle.

22. **(Amended)** The apparatus of Claim [21] 1, wherein said pump is adjustable to provide a selected output based upon a pressure approximating that present in said cavity.

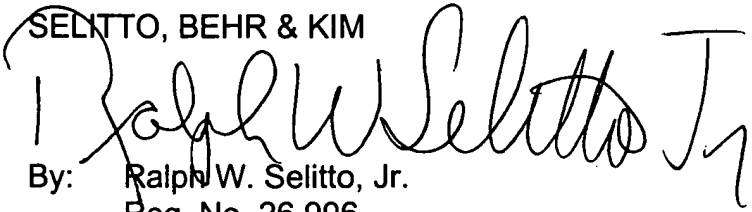
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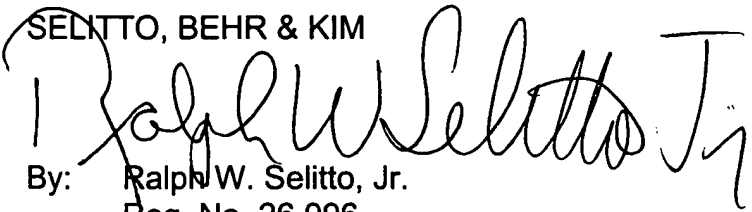
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